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MEMORANDUM

DATE: July 27, 2010

SUBJECT: Treatment of Contamination Found in Method and Field Blanks for Pavillion Groundwater Investigation Sampling

FROM: Rob Parker
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THROUGH: Susan Griffin
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TO: Chris Poulet
Agency for Toxic Substances and Disease Registry

The purpose of this memo is to provide additional information on the data provided by the EPA Region 8 Lab beyond that provided by the lab itself. The internal data review was performed in accordance with National Functional Guidelines for Superfund Organic Methods Data Review and Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis as outlined below. Specifically, this review addresses contamination found in laboratory method blanks, and a field blank.

Method Blank Contamination

There was method blank contamination associated with bis(2-ethylhexyl)phthalate, di-n-butyl phthalate, and di-n-octyl phthalate. In accordance with the CLP National Functional Guidelines[1], ester phthalates are considered "common lab contaminants" and any sample concentration that is not more than five times the concentration found in the blank should be qualified as non-detect, or U, at the value of five times the blank concentration. Although this analysis is designed for the CLP validation process, this analysis should be performed on data obtained from the EPA Region VIII Laboratory in an effort to maintain similar validation procedures.

- For bis(2-ethylhexyl)phthalate, the following sample IDs have the compound in the field sample that are below five times the value found in the corresponding method blank and should be qualified as non-detect at the value (in ug/L) listed in parenthesis: PGDW03 (0.60), PGDW04 (0.60), PGDW10 (0.60), PGDW20 (0.60), PGDW22 (0.60), PGDW23 (0.60), PGDW25 (0.60), PGDW30 (0.60), PGDW32 (0.60), PGDW39 (0.60), PGDW44 (0.60), PGDW45 (0.60), PGDW46 (0.60), PGDW47 (0.60), PGPW01 (0.60), PGPW02 (0.60), PGSW01 (0.60), PGSW02 (0.60), and PGSW02D (139.5).

- For di-n-butyl phthalate, the following sample IDs have the compound in the field sample that are below five times the value found in the corresponding method blank and should be qualified as non-detect at the value (in ug/L) listed in parenthesis: PGDW05D (0.55), PGDW23 (0.55), PGDW25 (0.55), PGDW30 (0.55), PGDW32 (0.55), PGDW39 (0.55), and PGDW42 (0.55).
- For di-n-octyl phthalate, the following sample IDs have the compound in the field sample that are below five times the value found in the corresponding method blank and should be qualified as non-detect at the value (in ug/L) listed in parenthesis: PGDW03 (0.70), PGDW05 (0.70), PGDW10 (0.70), and PGDW39 (0.70).

Field Blank Contamination

Additionally, there was field blank contamination associated with bis(2-ethylhexyl)phthalate detected in both the CLP laboratory and Region VIII Laboratory, diethylphthalate detected in the CLP Laboratory, and phenol detected in the Region VIII Laboratory. In accordance with Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis[2], ester phthalates are considered "common lab contaminant" and any sample concentration that is not more than ten times the concentration found in the field blank should be qualified as non-detect, or U, at the value of ten times the blank concentration.

- For bis(2-ethylhexyl)phthalate, the following sample IDs have detections from the CLP Laboratory that are below ten times the value found in the corresponding field blank and should be qualified as non-detect at a value of 6.4 ug/L, which is ten times the amount found in the field blank: PGDW05, PGDW05D, PGDW10, PGDW20, PGDW22, PGDW23, PGDW25, PGDW30, PGDW39, PGDW40, PGDW42, PGDW43, PGDW44, PGDW45, PGDW46, PGDW47, PGDW49, PGPW01, PGPW02, PGMW01, PGMW01D, PGMW02, PGMW03, PGSW01 PGSW02D, and PGSW05.
- For bis(2-ethylhexyl)phthalate, the following sample IDs have detections from the EPA Region VIII Laboratory that are below ten times the value found in the corresponding field blank and should be qualified as non-detect at a value of 5.8 ug/L, which is ten times the amount found in the field blank: PGDW05, PGDW05D, PGDW40, PGDW42, PGDW43, PGDW48, PGDW49, PGMW02, PGSW04, PGSW05.
- For diethylphthalate, the following sample IDs have detections from the CLP Laboratory below ten times the value found in the corresponding field blank and should be qualified as non-detect at a value of 3.6 ug/L, which is ten times the amount found in the field blank: PGSW03, PGSW04, and PGSW05.

Alternatively, for "non common lab contaminants," any sample concentration that is not more than *five* times the concentration found in the field blank should be qualified as non-detect, or U, at the value of *five* times the blank concentration[2].

- For phenol, the following sample ID has a detection from the EPA Region VIII Laboratory that is below five times the value found in the corresponding field blank and should be qualified as non-detect at a value of 0.65 ug/L, which is five times the amount found in the field blank: PGDW43.

Finally, there was field blank contamination associated with the Diesel Range Organics analysis performed by EPA Region VIII Lab. In a memo from the analyst at the Region VIII Lab, it is stated that the field blank chromatogram displayed one major peak of what was later tentatively identified to be 2,4-bis(1,1-dimethylethyl) phenol. That peak was not a significant detection in any of the other field samples. Since there is no overlap between the contamination detected in the field blank with the detection of the other field samples, no qualifying adjustments are necessary for the field samples.

Referenced Sources

[1] USEPA (2008). USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. EPA/540/R/08/01. Office of Superfund Remediation and Technology Innovation. Washington D.C.

[2] USEPA (1994). Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis. EPA/540/R/94/082. Office of Solid Waste and Emergency Response. Washington D.C.